



# IBM Enterprise COBOL for z/OS V4.1 helps improve application developer productivity

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## At a glance

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New in Enterprise COBOL V4.1

- XML enhancements
- Performance enhancements
- DB2 coprocessor enhancements
- Usability enhancements
- Other functional enhancements

### For ordering, contact:

Your IBM representative, an IBM Business Partner, or the Americas Call Centers at

**800-IBM-CALL** Reference: LE001

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## Overview

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With Enterprise COBOL for z/OS® V4.1, you can leverage more than 30 years of IBM experience in application development to facilitate your new on demand endeavors, helping you to integrate COBOL and Web-based business processes in Web services, XML, Java™, and COBOL applications. This interoperability enables you to capitalize on existing IT investment while smoothly incorporating new, Web-based applications as part of your organization's infrastructure.

Enterprise COBOL is a leading-edge z/OS-based compiler that helps you create and maintain mission-critical, line-of-business COBOL applications, targeted to execute on your z/OS systems and provides access to DB2®, CICS®, and IMS™ systems, as well as other data and transaction systems.

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## Key prerequisites

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Refer to the Software requirements section.

### Planned availability date

December 14, 2007

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## Description

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Enterprise COBOL V4.1 Compiler enhancements include:

The XML GENERATE statement is extended with new syntax that gives the programmer more flexibility and control over the form of the XML document that is generated.

- WITH ATTRIBUTES phrase — Allows the user to specify that eligible items in the XML document be generated as XML attributes instead of as elements
- WITH ENCODING phrase — Allows the user to specify the encoding of the generated document
- NAMESPACE and NAMESPACE-PREFIX phrases — Allow generation of XML documents that use XML namespaces
- WITH XML-DECLARATION — Includes the version and the encoding information in the document

The XML GENERATE statement now supports generation of XML documents encoded in UTF-8 Unicode.

The XML PARSE support is enhanced.

- The z/OS System Services XML parser is now supported as an alternative to the existing XML parser, which is part of the COBOL library
- The z/OS System Services XML parser provides the following benefits:
  - The latest IBM parsing technology is available to COBOL users
  - Offload of COBOL XML parsing to zAAP specialty processors
  - Improved support for parsing XML documents that use XML namespaces
  - Direct Support™ is provided for parsing XML documents that are encoded in UTF-8 Unicode
  - Support for parsing very large XML documents, a buffer of XML at a time
- Four new special registers are introduced for namespace processing during execution of XML PARSE statements.
- The XML PARSE statement is extended with new syntax WITH ENCODING and RETURNING NATIONAL gives the programmer control over the assumed encoding of input XML documents, to facilitate parsing in Unicode.
- A new compiler option, XMLPARSE, to control whether the z/OS System Services parser or the existing COBOL parser, is used for XML PARSE statements. With the XMLPARSE(COMPAT) option XML parsing is fully compatible with Enterprise COBOL V3.

With the XMLPARSE(XMLSS) options, the z/OS System Services parser is used and new XML parsing capabilities are enabled.

Performance of COBOL application programs is enhanced by exploitation of new z/Architecture™ instructions. The performance of COBOL Unicode support (USAGE NATIONAL data) is significantly improved.

DB2 support is enhanced in this release, including DB2 V9 exploitation and improvements in coprocessor integration and usability:

- Support for new SQL data types and new SQL syntax provided by DB2 V9
- DB2 options are shown in the compiler listing (DB2 V9 only)
- SQLCA and SQLDA control blocks are expanded in the compiler listing (all supported DB2 releases)
- A new compiler option SQLCCSID is provided to coordinate the coded character set ID (CCSID) between COBOL and DB2

Additional function is also included in COBOL V4.1:

- Compiler options can be specified in a data set.
- When the XREF compiler option is used, the compiler listing includes cross references of COPY statements, libraries, and data sets.
- Debug Tool V8 is supported.
- A new suboption of the TEST compiler option enables support for the Debug Tool GOTO and JUMPTO commands when debugging optimized production programs.
- DFSMS large-format data sets are supported.
- Internal compiler limits are increased to enable compilation of very large and complex COBOL source programs.

**Debug Tool Utilities and Advanced Functions for z/OS V8.1:** The previous version of Enterprise COBOL was available with Alternate Function or Full Function offerings. The Alternate Function offering included the COBOL compiler. The Full Function offering included both the COBOL compiler and the basic debug capability found in Debug Tool for z/OS. Enterprise COBOL V4.1 provides the COBOL compiler only. It is not available with a Full Function offering. The latest version of that basic debug capability can be obtained in Debug Tool for z/OS V8.1, which can be ordered separately. For more information on Debug Tool for z/OS V8.1, refer to [207-205](#), dated September 18, 2007.

As an alternative to Debug Tool V8.1, Debug Tool Utilities and Advanced Functions V8.1 for z/OS includes the basic function in Debug Tool V8.1 and delivers additional advanced debugging capability to help maximize the availability of z/OS applications. Debug Tool Utilities and Advanced Functions for z/OS gives you the debugging capability for applications written in COBOL, PL/I, C/C++, and Assembler that run in a variety of environments, such as batch, TSO, CICS, IMS, DB2, and UNIX® System Services. It offers more productivity enhancements when used with IBM Rational® Developer for System z™ to debug applications from the workstation using remote debug capabilities. It also includes tools to help identify old OS/VS and VS COBOL II source code, upgrade the code to Enterprise COBOL, and, supplies the tools to help you determine how thoroughly your code has been tested (code coverage). For more information on Debug Tool Utilities and Advanced Functions for z/OS V8.1, refer to [207-206](#), dated September 18, 2007.

### **Section 508 of the U.S. Rehabilitation Act**

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The product in this announcement is capable as of its general availability, when used in accordance with associated IBM documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

### **Hardware and software support services**

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**SmoothStart™/installation services:** IBM SmoothStart and Installation Services are not provided.

### **Business Partner information**

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If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBM ID).

BP Attachment for Announcement Letter 207-339

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=207-339>

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## Technical information

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**Hardware requirements:** Enterprise COBOL for z/OS® V4.1 will run on any z/Architecture™ processor that includes the z/Architecture Extended-Translation Facility 2.

**Software requirements:** Enterprise COBOL for z/OS V4.1 runs under the control of, or in conjunction with, the currently supported releases of the following programs and their subsequent releases or their equivalents. For more information on programs listed below that require program temporary fixes (PTFs), refer to the Program Directory, the Customization Guide, and the preventive service planning (PSP) bucket.

z/OS, V1.7 (5694-A01) or later is a required licensed program.

The z/OS Language Environment® provides the execution environment and library of COBOL run-time services required to compile and run COBOL applications using Enterprise COBOL. z/OS Language Environment V1.7, V1.8, or V1.9 plus PTFs for APAR PK55645 is required.

For installation on z/OS, the z/OS SMP/E element is required.

z/OS High Level Assembler is required for customization during or after installation.

Enterprise COBOL XML processing with the XMLPARSE (XMLSS) option requires z/OS V1.7, V1.8, and V1.9 XML Systems Services plus PTFs for APAR OA22777.

Support for object-oriented COBOL syntax (Java™ interoperability) requires SDK for z/OS, Java 2 Technology Edition (5655-I56), V1.4.

**Note:** COBOL requires a 31-bit Java SDK, 64-bit Java technology is not currently supported. Java 2 Technology Edition V5 is not currently supported.

Support for DB2® integrated coprocessor (SQL compiler option) requires:

- DB2 Universal Database® for z/OS, V9 (5635-DB2)
- DB2 Universal Database for z/OS, V8 (5625-DB2)
- DB2 Universal Database, V7 (5675-DB2)
- Use of Unicode in DB2 COBOL applications running with DB2 V7 requires DB2 APAR PQ61320

Support for use of national decimal host variables in EXEC SQL statements requires DB2 V8 with APAR PQ93857 or DB2 V9.

Support for use of alternate DDNAME for DBRMLIB requires DB2 V8 or DB2 V9 and PTFs for DB2 APAR PK55937.

Support for the integrated CICS® translator (CICS compiler option) requires CICS Transaction Server for z/OS, V2 (5697-E93), or V3 (5655-M15).

For sorting and merging, the DFSORT™ element of z/OS (5694-A01) feature of z/OS or an equivalent product.

Programs with Report Writer statements require COBOL Report Writer, Release 4 (5798-DYR, 5798-DZX).

### Optional licensed programs for z/OS

Enterprise COBOL for z/OS V4 runs with the currently supported releases of the following programs:

- CICS Transaction Server for z/OS, V3 (5655-M15)
- CICS Transaction Server for z/OS, V2 (5697-E93)
- DB2 Universal Database for z/OS, V9 (5635-DB2)
- DB2 Universal Database for z/OS, V8 (5625-DB2)

- DB2 Universal Database for OS/390® and z/OS, V7 (5675-DB2)
- IMS™, V10 (5635-A01)
- IMS, V9 (5655-J38)
- IMS, V8 (5655-C56)
- Debug Tool for z/OS, V8 (5655-S17)
- Debug Tool Utilities and Advanced Functions for z/OS, V8 (5655-S16) for use with Debug Tool for z/OS, V8
- Debug Tool for z/OS, V7 (5655-R44)
- Debug Tool Utilities and Advanced Functions for z/OS, V7 (5655-R45) for use with Debug Tool for z/OS, V7
- High Level Assembler MVS™ & VM & VSE (5696-234)
- COBOL Report Writer R4 (5798-DYR and 5798-DZX)
- PL/I for MVS & VM, V1 (5688-235)
- Enterprise PL/I for z/OS and OS/390, V3 (5655-H31)
- VS FORTRAN, V2 (5668-806, 5688-087)
- For C/C++ with Enterprise COBOL — You must use the C/C++ feature of z/OS.

### **Planning information**

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**Packaging:** The Enterprise COBOL for z/OS V4 package includes:

- Basic machine-readable material on the customer-selected distribution medium
- Program Directory (GI11-7870)
- Licensed Program Specifications (GI11-7871)

### **Security, auditability, and control**

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The announced program uses the security and auditability features of the host operating system software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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## **Ordering information**

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### **Ordering z/OS through the Internet**

ShopzSeries provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration, and present your new configuration based on z/OS. Additional products can also be added to your order (including determination of whether all product requisites are satisfied). ShopzSeries is available in the U.S., Canada, and several countries in Europe. In countries where ShopzSeries is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order via the traditional IBM ordering process. For more details and availability, visit the ShopzSeries Web site at

<http://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>

### **New licensees**

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- Orders for new licenses can be placed now.
- Registered customers can access IBMLink™ for ordering information and charges.

- Shipment will not occur before availability date.
- Shipment will begin on the planned availability date.
- Unless a later date is specified, orders entered before the planned availability date will be assigned a schedule date of one week following availability.
- Orders entered after the planned availability date will be assigned a schedule date for the week following order entry.
- New users of Enterprise COBOL for z/OS V4 should specify Type: 5655 Model: S71.

**Parallel Sysplex® license charge (PSLC) basic license**

To order a basic license, specify the program number and quantity of MSU.

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable PSLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the System Usage Registration No-Charge (SYSUSGREG NC) Identifier on the licenses.

Entitlement identifier	Description	License option/Pricing metric
S014DVZ	Enterprise COBOL V4	Basic MLC, PSLC below 3 MSU Basic MLC, PSLC AD SYSUSGREG NC, PSLC AD

**Workload License Charge (WLC) Basic License:** If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable WLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the Workload Registration Variable WLC Identifier on the licenses.

Entitlement identifier	Description	License option/Pricing metric
S014DVZ	Enterprise COBOL V4	Basic MLC, Variable WLC Workload Registration, Variable WLC

**Entry Workload License Charge (EWLC) Basic License:** To order a basic license, specify the program number and the quantity of MSUs.

Entitlement identifier	Description	License option/Pricing metric
S014DVZ	Enterprise COBOL V4	Basic MLC, Entry WLC

**Growth opportunity license charge (GOLC):** To order a basic license, specify the program number and the correct level.

Specify the GOLC monthly license option.

Entitlement identifier	Description	License option/Pricing metric
S014DVZ	Enterprise COBOL V4	Basic MLC, GOLC

**zSeries® entry license charge (zELC):** To order zELC software, specify the program number and z800 model.

Specify the zELC monthly license option.

Entitlement identifier	Description	License option/Pricing metric
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**Single version charging:** To elect single version charging, the customer must notify and identify to IBM the prior program and replacement program and the designated machine the programs are operating on.

### Basic machine-readable material

Orderable

Supply ID	Language	Distribution Medium	Description
S014DWO	US English	3480 Tape Cartridge	Enterprise COBOL V4
S014DW1	Japanese	3480 Tape Cartridge	Enterprise COBOL V4

**Customization options:** Select the appropriate feature numbers to customize your order to specify the delivery options desired. These features can be specified on the initial or MES orders.

**Example:** If publications are not desired for the initial order, specify feature number 3470 to ship media only. For future updates, specify feature number 3480 to ship media updates only. If, in the future, publication updates are required, order an MES to remove feature number 3480; then, the publications will ship with the next release of the program.

### Initial shipments

Feature	Description
3444	Serial Number Only (suppresses shipment of media and documentation)
3470	Ship Media Only (suppresses initial shipment of documentation)
3471	Ship Documentation Only (suppresses initial shipment of media)
3451	Internet Electronic Delivery

### Update shipments

Feature	Description
3480	Ship Media Updates Only (suppresses update shipment of documentation)
3481	Ship Documentation Only (suppresses update shipment of media)
3482	Suppress Updates (suppresses update shipment of media and documentation)

### Expedite shipments

Feature	Description
3445	Local IBM Office Expedite (for IBM use only)
3446	Customer Expedite Process Charge (\$30 charge for each product)

Expedite shipments will be processed to receive 72-hour delivery from the time IBM Software

Delivery and Fulfillment (SDF) receives the order. SDF will then ship the order via overnight air transportation.

**Unlicensed documentation:** A Program Directory (GI11-7870) and Licensed Program Specifications (GI11-7871) are supplied automatically with the basic machine-readable material. No other hardcopy publications are shipped with the product.

The following optional publications will be available after product availability:

- Customization Guide (SC23-8526)
- Language Reference Manual (SC23-8528)
- Migration Guide (GC23-8527)
- Programming Guide (SC23-8529)

**Displayable Softcopy Publications:** All Enterprise COBOL V4 publications are available in displayable softcopy format (BookManager®, PDF) on the IBM COBOL Web site

<http://www.ibm.com/software/awdtools/cobol/>

Subsequent updates (technical newsletters or revisions between releases) to the publications shipped with the product will be distributed to the user of record for as long as a license for this software remains in effect. A separate publication order or subscription is not needed.

### **Customized offerings**

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Product deliverables are shipped only via Customized Offerings (for example, CBPDO, ServerPac, and SystemPac®).

CBPDO and ServerPac are offered for Internet delivery, where ShopzSeries product ordering is available. Internet delivery of ServerPac may help improve automation and software delivery time. For more details on Internet delivery, refer to the ShopzSeries help information at

<http://www.software.ibm.com/ShopzSeries>

Media type for this software product is chosen during the customized offerings ordering process. Based on your customer environment, it is recommended that the highest possible density tape media is selected. Currently offered media types are:

- CBPDOs — 3480, 3480 Compressed, 3490E, 3590, 3592\*
- ServerPacs — 3480, 3480 Compressed, 3490E, 3590, 3592\*
- SystemPacs — 3480, 3480 Compressed, 3490E, 3590, 3592\*

\* 3592 is highest density media. Selecting 3592 will ship the fewest number of media.

Once a product becomes generally available, it will be included in the next ServerPac and SystemPac monthly update.

Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin two weeks after inclusion in ServerPac.
- SystemPac shipments will begin four weeks after inclusion in SystemPac due to additional customization, and data input verification.

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## **Terms and conditions**

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**Agreement:** IBM Customer Agreement

**Variable charges apply:** No



**Indexed monthly license charge (IMLC) applies:** No

**Location license applies:** No

**Use limitation applies:** No

**Educational allowance available:** Yes, 15% education allowance applies to qualified education institution customers.

**Volume orders:** Not applicable

Replaced Program Program Program number name	Replacement Program Program Program number name
5740-CB1 OS/VS COBOL	5655-S71 Enterprise COBOL for z/OS V4
5740-LM1 OS/VS COBOL	5655-S71 Enterprise COBOL for z/OS V4
5734-CB4 OS/VS COBOL	5655-S71 Enterprise COBOL for z/OS V4
5734-CB2 OS COBOL V4	5655-S71 Enterprise COBOL for z/OS V4
5688-022 VS COBOL II	5655-S71 Enterprise COBOL for z/OS V4
5688-023 VS COBOL II	5655-S71 Enterprise COBOL for z/OS V4
5668-958 VS COBOL II	5655-S71 Enterprise COBOL for z/OS V4
5688-194 IBM CODE/370	5655-S71 Enterprise COBOL for z/OS V4
5688-197 IBM COBOL for MVS & VM V1	5655-S71 Enterprise COBOL for z/OS V4
5648-A25 IBM COBOL for OS/390 & VM V2	5655-S71 Enterprise COBOL for z/OS V4
5655-G53 IBM Ent COBOL for z/OS V3	5655-S71 Enterprise COBOL for z/OS V4
5655-S71 IBM Ent COBOL for z/OS V4	To a follow-on if any

**Warranty applies:** Yes

**Licensed program materials availability**

Restricted materials of IBM:	None
Non-restricted source materials:	None
Object Code Only (OCO):	All

**Program services**

Support Center applies:	Yes
	Access is available through the IBM Support Center.
Available until discontinued:	12 months' written notice
APAR Mailing Address:	IBM Corporation APAR Processing

**IBM Operational Support Services — SupportLine: Yes**

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**Prices**

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**Sub-capacity charges for VWLC products**

Sub-capacity charges for VWLC products are based on product LPAR utilization capacity. Product LPAR utilization capacity for a VWLC product is the highest number of MSUs utilized by the combined LPARs in which a VWLC product runs concurrently during a reporting period. The number of MSUs is based on the highest observed rolling 4-hour average utilization used by the combination of the relevant LPARs during the reporting period. Refer to [200-354](#), dated October 3, 2000, [201-258](#), dated September 11, 2001, and [202-105](#), dated April 30, 2002, for additional details on IBM Workload License Charges.

**Sub-capacity charges terms and conditions**

System z™ software charges at less than full machine capacity for eligible VWLC products apply when z/OS is running in z/Architecture (64-bit) mode on an IBM eServer® System z 900, no other MVS-based operating system is licensed to that server and the required information is provided by the customer in accordance with the applicable terms.

Sub-capacity charges for a VWLC product is based on the utilization of the LPARs where/when the product executes. To obtain charges at less than full machine capacity for VWLC products the customer is required to:

- Sign and abide by the terms of the Attachment for IBM System z Workload License Charges — (Z125-6516).
- Obtain the latest version of the sub-capacity reporting tool
- Install any VWLC product and IBM eServer System z 900. Licensed Internal Code (LIC) service required for sub-capacity charging. Required service will be listed on the WLC Web site  
<http://www.ibm.com/zseries/swprice>
- Collect SMF data as required by the sub-capacity reporting tool. Retain the collected SMF data for a period of not less than 6 months.
- Use the IBM provided sub-capacity reporting tool to process the collected SMF data. The sub-capacity report produced by the tool is used to determine required license capacity for the VWLC products. Required license capacity is determined based on the largest MSU value of a VWLC product running concurrently in all LPARs during the reporting period. IBM reserves the right to request the system data that supports these product defined capacity values for a period of up to six months after the data was collected.
- Provide an initial sub-capacity report to begin to receive the benefits of less than full machine capacity charges. Sub-capacity charging will follow submission of a sub-capacity report. There will be no retroactive application of sub-capacity charges.
- Submit sub-capacity reports monthly.
- Submit sub-capacity reports for all VWLC products with complete data for the entire reporting period to the e-mail address and by the date, specified in the current IBM System z Workload License Charges Exhibit (Z125-6324). and on the System z Software Pricing Web site  
<http://www.ibm.com/zseries/swprice>  
Sub-capacity reports that reflect a changed product defined capacity will be considered to be orders placed by the customer without further action on the customer's part and IBM is authorized to make any resulting billing increase or decrease. To place an order for a new license or to discontinue licenses, move licenses between machines, report a hardware model upgrade or enable or disable product features, the customer must contact IBM or their IBM Business Partner.
- Configure machine to send weekly Transmit System Availability Data (TSAD) to IBM via the IBM eServer System z 900 Remote Support Facility (RSF). if the machine cannot connect via the RSF, provide this TSAD via an alternate means documented in the z/OS publication Planning for Workload License Charges at

<http://www.ibm.com/zseries/swprice>

## **IBM Global Financing**

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IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

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## **Order now**

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To order, contact the Americas Call Centers, your local IBM representative, or your IBM Business Partner.

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Fax: 800-2IBM-FAX (242-6329)  
Internet: [callserv@ca.ibm.com](mailto:callserv@ca.ibm.com)  
Mail: IBM Teleweb Customer Support  
ibm.com Sales Execution Center, Americas North  
3500 Steeles Ave. East, Tower 3/4  
Markham, Ontario  
Canada  
L3R 2Z1

Reference: LE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

**Note:** Shipments will begin after the planned availability date.

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